



U.S. Department of Energy
Office of Civilian Radioactive Waste Management



Transportation Routing Process

Presented to:
TEC Routing Plenary Session

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Overview

- **Office of Civilian Radioactive Waste Management's (OCRWM) *Strategic Plan for the Safe Transportation of Spent Nuclear Fuel and High-Level Radioactive Waste to Yucca Mountain: A Guide to Stakeholder Interactions*, issued November 2003**
 - **Transportation planning process designed to meet program goals and address stakeholder concerns**
 - **Commitment to collaborative relationships with program stakeholders in transportation planning**
 - **Incorporate successful elements from past experience in other DOE shipping campaigns**
 - **Address and resolve issues, one of which is identification of transportation routes**



Recent Events in Transportation Planning and Routing

- **OCRWM Director's testimony, July 19 Hearing – House Subcommittee on Energy and Air Quality**
 - **Develop and begin implementation of a comprehensive national spent fuel transportation plan**
 - **Accommodate state, local and tribal concerns to the greatest extent possible for transportation planning**
 - **Put into place a process that maximizes the ability of public to understand transportation risks**
 - **Allow public to influence, as appropriate, the selection of routes within their jurisdictional areas**
 - **Continue work with local planning groups at an accelerated pace**



Recent Events in Transportation Planning and Routing (cont.)

- **OCRWM Director's testimony, August 3 Hearing – Senate Committee on Energy and Natural Resources**
 - Continue longstanding practice to work with program stakeholders and utilize their resources and expertise
 - Not proposing to change activities with State, tribal and local authorities
 - ◆ Route planning
 - ◆ Emergency planning
 - ◆ Training and education
- **National Academies Recommendations**
 - DOE should continue to ensure effective involvement of states and tribal governments in its decisions on routing
 - DOE should identify suite of preferred rail and highway routes as soon as practicable to support state, tribal and local planning



Objectives of Process on Route Identification

- **Determine operational considerations with railroads and highway carriers**
 - **Most effective and efficient operational routing**
- **Identify draft routing criteria**
 - **Collaboration with program stakeholders**
 - **Consultation with appropriate parties**
- **Evaluate input and resolve comments from program stakeholders**
- **Develop final criteria**
- **Identify national suite of rail and highway routes**



Proposed Approach for Routing Process

- **Issue Route Development Plan**
- **Establish Routing Topic Group to address the issue**
 - **Membership comprised of program stakeholders**
 - ◆ **Representatives from Transportation External Coordination (TEC) Working Group member organizations**
 - » **State Regional Groups (SRGs)**
 - » **Tribal representatives**
 - » **Local governments**
 - » **Transportation industry**
 - » **Federal agencies**
 - » **Trade organizations**
 - » **Emergency response organizations**
 - ◆ **Other interested parties**



Proposed Approach for Routing Process

(cont.)

- **Routing topic group activities**
 - Monthly conference calls, meetings as needed
 - Near term identification of routing criteria
 - Discussions at TEC/SRG/industry meetings
- **Routing process will:**
 - Provide information for 180(c) pilot program and determination of funding allocation for states and tribes
 - Respond to National Academies' recommendation on route identification process
 - Provide time for operational and security planning
 - Coordinate with supplement to the Yucca Mountain Final Environmental Impact Statement



Proposed Approach for Routing Process (cont.)

- **Review criteria with topic group and TEC membership**
 - **Computer model runs to identify candidate routes based on criteria**
 - ◆ **Ensure operational effectiveness**
 - **Table top exercises to study routes and alternates**
 - **Regional and national routing connections examined to ensure consistency across state lines**



Process to Identify National Suite of Routes

- **Review previous shipping campaigns**
- **Identify cognizant oversight organizations**
- **Determine Federal/industry guidance and regulatory requirements**
- **Explore routing principles**
- **Conduct routing assessment**
- **Review SRGs' study projects**
- **Develop national suite of routes**



Review Previous Shipping Campaigns

- **Foreign Research Reactor**
 - SNF shipments to Idaho National Laboratory (INL) and Savannah River Site (SRS)
- **West Valley Spent Nuclear Fuel**
 - Shipments from West Valley, NY to INL
- **Waste Isolation Pilot Plant**
 - Transuranic waste from various DOE sites to Carlsbad, NM
- **Domestic research reactors**
 - From universities, other Federal agencies and private sector firms to SRS or INL
- **Naval Nuclear Propulsion Program**
 - Nationwide rail routing experience for over 45 years



Oversight Organizations

- **Federal agencies**
 - Department of Energy (DOE)
 - Department of Transportation
 - ◆ Federal Railroad Administration
 - ◆ Federal Motor Carriers Safety Administration
 - Nuclear Regulatory Commission
 - Department of Homeland Security
- **Nuclear Utilities**
- **Railroad operations**
 - American Association of Railroads
 - Individual Railroad companies
- **Security considerations**
 - Responsible DOE Office (in coordination with other appropriate organizations)



Regulatory Requirements and Guidance

- **Department of Transportation**
 - 49 CFR Part 397 (Transportation of Hazardous Materials)
 - Guidelines for Selecting Preferred Highway Routes for Highway Route Controlled Quantity Shipments of Radioactive Materials
 - Identification of Factors for Selecting Modes and Routes for Shipping HLW and SNF (Volpe Center)
- **Federal Railroad Administration**
 - Safety Compliance Oversight Plan
- **Nuclear Waste Policy Act**
 - Follow 10 CFR Part 73 – Advance notification prior to shipments



Regulatory Requirements and Guidance (cont.)

- **Department of Energy**
 - **Order 460.2: *Radioactive Material Transportation Practices Manual***
- **Association of American Railroads**
 - **Circular OT-55: *Recommended Railroad Operating Practices for Transportation of Hazardous Materials***



Routing Principles for OCRWM Shipments

- **Operational, public and radiological safety**
- **Regulatory compliance (Federal, state, tribal and local regulations)**
- **Security and operational flexibility**
- **Operational efficiency and utility**
- **Commercial practicability**
- **Routing assessment tools**
 - **Transportation Routing Analysis Geographic Information System (TRAGIS)**
 - **Transportation Risk Assessment Computer Code (RADTRAN)**



Routing Assessment

- **Modeling and planning tools**
 - **TRAGIS and RADTRAN**
 - **Table top exercises as needed**
 - ◆ **Develop criteria and apply to:**
 - » **Route planning and evaluation**
 - » **Interactive organizational responsibilities**
 - » **Emergency response planning**
 - **DOE Transportation Practices Manual**
 - **FRA Safety Compliance Oversight Plan**
- **Decision support methodology (weigh importance of criteria and factors)**



Routing Assessment (cont.)

- **Council of State Governments' Midwestern Office and Eastern Regional Conference analyzed routes through their specific regions**
 - Identified primary and secondary routing criteria
 - Suggested routes will allow for national discussions
- **DOE can generate other regional route analyses, as requested**
 - SRGs/carriers review route proposals
 - Stakeholder feedback on preliminary mapping exercises
- **Develop recommendations on regional routes**



Development of National Suite of Routes

- **Identify draft routing criteria**
 - Collaborate with stakeholders to prioritize
 - Consult with railroads on operational considerations and restraints
- **Develop final criteria, rules and practices**
- **Use TRAGIS and RADTRAN runs to identify candidate suite of national rail and highway routes**
- **Conduct review of routes with Routing Topic Group and TEC members**
- **Identification of suite of national routes – final determination responsibility with DOE**



Proposed schedule for routing analysis

- Routing Process Plan
- Formation of Routing Topic Group
- Initiate discussions with carriers
- Establish draft routing criteria
- Review and revise criteria based on stakeholder input
- Finalize routing criteria
- Review and analyze candidate routes
- Identify national suite of routes
- September 2006
- October 2006
- November 2006
- February 2007
- April 2007
- June 2007
- October 2007
- December 2007

